WHAT IS CLAIMED IS:

1. A method of providing information to a user based upon contents of a first document displayed to the user, the method comprising:

identifying the first document displayed to the user;

identifying at least a first section of the first document;

extracting a first set of information objects from the first section of the first document;

determining degree of relevancy information for a second set of information objects, the degree of relevancy information indicating the relevancy of information objects in the second set of information objects to information objects in the first set of information objects; and

selecting a third set of information objects from information objects in the second set of information objects based upon the degree of relevancy information determined for information objects in the second set of information objects, wherein information objects in the third set of information objects store information to be output to the user when the first document is being displayed to the user.

2. The method of claim 1 wherein the first section of the first document corresponds to a section of the first document displayed to the user.

3. The method of claim 1 wherein the first section of the first document corresponds to the entire first document.

4. The method of claim 1 wherein extracting the first set of information objects from the first section of the first document comprises:

for each information object in the first set of information objects:

identifying a type of the information object based upon contents of the information object;

determining a first content recognition technique based upon the type of the information object; and

applying the first content recognition technique to the information object to determine information related to the contents of the information object.

5. The method of claim 1 wherein:

2   determining the degree of relevancy information for the second set of

3   information objects comprises:

4   identifying a plurality of selection techniques for determining the

5   degree of relevancy information; and

6   for each selection technique in the plurality of selection techniques,

7   applying the selection technique to generate relevancy scores for information objects in the

8   second set of information objects, the relevancy scores indicating the relevancy of

9   information objects in the second set of information objects to information objects in the first

10   set of information objects calculated using the selection technique; and

11   selecting the third set of information objects comprises:

12   selecting information objects from the second set of information

13   objects to be included in the third set of information objects based upon the relevancy scores

14   for information objects in the second set of information objects calculated using the plurality

15   of selection techniques.

1   6.   The method of claim 5 wherein selecting information objects from the

2   second set of information objects to be included in the third set of information objects based

3   upon the relevancy scores for information objects in the second set of information objects

4   calculated using the plurality of selection techniques comprises:

5   for each information object in the second set of information objects:

6   calculating an aggregate relevancy score for the information object by

7   aggregating the relevancy scores generated for the information object by applying the

8   plurality of selection techniques; and

9   selecting the information object to be included in the third set of

10   information objects if the aggregated relevancy score calculated for the information object is

11   above a threshold value.

1   7.   The method of claim 1 wherein:

2   determining the degree of relevancy information for the second set of

3   information objects comprises:

4   identifying a first selection technique and a second selection technique

5   for determining the degree of relevancy information; and

6   applying the first selection technique to generate a first set of relevancy

7   scores for information objects in the second set of information objects, the first set of

8   relevancy scores indicating the relevancy of information objects in the second set of

9   information objects to information objects in the first set of information objects calculated

10   using the first selection technique;

11   applying the second selection technique to generate a second set of

12   relevancy scores for information objects in the second set of information objects, the second

13   set of relevancy scores indicating the relevancy of information objects in the second set of

14   information objects to information objects in the first set of information objects calculated

15   using the second selection technique; and

16   selecting the third set of information objects comprises:

17   selecting information objects from the second set of information

18   objects to be included in the third set of information objects based upon the first set of

19   relevancy scores and the second set of relevancy scores.

1   8.   The method of claim 7 wherein applying the first selection technique

2   to generate the first set of relevancy scores comprises:

3   determining a plurality of concepts of interest to the user;

4   determining relevancy of each information object in the first set of information

5   objects to each concept in the plurality of concepts;

6   determining relevancy of each information object in the second set of

7   information objects to each concept in the plurality of concepts; and

8   calculating the first set of relevancy scores based upon the relevancy of each

9   information object in the first set of information objects to each concept in the plurality of

10   concepts and based upon the relevancy of each information object in the second set of

11   information objects to each concept in the plurality of concepts, wherein each relevancy score

12   in the first set of relevancy scores indicates a degree of relevancy of an information object in

13   the second set of information objects to an information object in the first set of information

14   objects for a particular concept included in the plurality of concepts.

1   9.   The method of claim 7 wherein applying the second selection

2   technique to generate the second set of relevancy scores comprises:

3   for each information object in the first set of information objects:

4   identifying a type of the information object based upon contents of the

5   information object;

6   determining a comparison technique based upon the type of the

7   information object; and

8   for each information object in the second set of information objects,

9   applying the comparison technique to generate a relevancy score for the information object in

10   the second set of information objects, the relevancy score indicating a degree of relevance of

11   the information object in the second set of information objects to the information object in the

12   first set of information objects using the comparison technique determined based upon the

13   type of the information object in the first set of information objects.

1   10.   The method of claim 1 further comprising communicating the third set

2   of information objects to a user system which is used to output information stored by

3   information objects in the third set of information objects to the user.

1   11.   The method of claim 1 wherein the first document is displayed to the

2   user using an access program and the information stored by information objects in the third

3   set of information objects is output to the user in a predetermined area of the access program.

1   12.   The method of claim 11 wherein the access program is a web browser

2   and the first document is a web page.

1   13.   The method of claim 1 further comprising:

2   determining when a second document is displayed to the user instead of the

3   first document;

4   identifying the second document displayed to the user;

5   identifying at least a first section of the second document;

6   extracting a fourth set of information objects from the first section of the

7   second document;

8   determining new degree of relevancy information for the second set of

9   information objects, the new degree of relevancy information indicating the relevancy of

10   information objects in the second set of information objects to information objects in the

11   fourth set of information objects; and

12   selecting a fifth set of information objects from information objects in the

13   second set of information objects based upon the new degree of relevancy information

14   determined for the second set of information objects, wherein information objects in the fifth

15   set of information objects store information to be output to the user when the second

16   document is being displayed to the user.

1   14.   A method of providing information to a user based upon contents of a

2   document displayed to the user, the method comprising:

3   accessing a first set of content provider information objects (CPIOs);

4   identifying the document displayed to the user;

5   extracting a first set of user document information objects (UDIOs) from the

6   document;

7   identifying a plurality of selection techniques for determining degree of

8   relevancy information for the first set of CPIOs;

9   for each selection technique in the plurality of selection techniques, applying

10   the selection technique to generate degree of relevancy information for the CPIOs, the degree

11   of relevancy information indicating the relevancy of the CPIOs to the UDIOs calculated

12   using the selection technique; and

13   selecting a second set of CPIOs from the first set of CPIOs based upon the

14   degree of relevancy information for the CPIOs calculated using the plurality of selection

15   techniques, wherein information objects in the second set of CPIOs store information to be

16   output to the user when the document is being displayed to the user.

1   15.   A computer-program product stored on a computer readable storage

2   medium for providing information to a user based upon contents of a first document

3   displayed to the user, the computer-program product comprising:

4   code for identifying the first document displayed to the user;

5   code for identifying at least a first section of the first document;

6   code for extracting a first set of information objects from the first section of

7   the first document;

8   code for determining degree of relevancy information for a second set of

9   information objects, the degree of relevancy information indicating the relevancy of

10   information objects in the second set of information objects to information objects in the first

11   set of information objects;

12   code for selecting a third set of information objects from information objects

13   in the second set of information objects based upon the degree of relevancy information

14   determined for information objects in the second set of information objects, wherein

15   information objects in the third set of information objects store information to be output to

16   the user when the first document is being displayed to the user.

1   16.   The computer-program product of claim 15 wherein the first section of

2   the first document corresponds to a section of the first document displayed to the user.

1   17.   The computer-program product of claim 15 wherein the first section of

2   the first document corresponds to the entire first document.

1   18.   The computer-program product of claim 15 wherein the code for

2   extracting the first set of information objects from the first section of the first document

3   comprises:

4   for each information object in the first set of information objects:

5   code for identifying a type of the information object based upon

6   contents of the information object;

7   code for determining a first content recognition technique based upon

8   the type of the information object; and

9   code for applying the first content recognition technique to the

10   information object to determine information related to the contents of the information object.

11   19.   The computer-program product of claim 15 wherein:

12   the code for determining the degree of relevancy information for the second

3   set of information objects comprises:

4   code for identifying a plurality of selection techniques for determining

5   the degree of relevancy information; and

6   for each selection technique in the plurality of selection techniques,

7   code for applying the selection technique to generate relevancy scores for information objects

8   in the second set of information objects, the relevancy scores indicating the relevancy of

9   information objects in the second set of information objects to information objects in the first

10   set of information objects calculated using the selection technique; and

11   the code for selecting the third set of information objects comprises:

12   code for selecting information objects from the second set of

13   information objects to be included in the third set of information objects based upon the

14   relevancy scores for information objects in the second set of information objects calculated

15   using the plurality of selection techniques.

42

1   20.   The computer-program product of claim 19 wherein the code for

2   selecting information objects from the second set of information objects to be included in the

3   third set of information objects based upon the relevancy scores for information objects in the

4   second set of information objects calculated using the plurality of selection techniques

5   comprises:

6   for each information object in the second set of information objects:

7   code for calculating an aggregate relevancy score for the information

8   object by aggregating the relevancy scores generated for the information object by applying

9   the plurality of selection techniques; and

10   code for selecting the information object to be included in the third set

11   of information objects if the aggregated relevancy score calculated for the information object

12   is above a threshold value.

1   21.   The computer-program product of claim 15 wherein:

2   the code for determining the degree of relevancy information for the second

3   set of information objects comprises:

4   code for identifying a first selection technique and a second selection

5   technique for determining the degree of relevancy information; and

6   code for applying the first selection technique to generate a first set of

7   relevancy scores for information objects in the second set of information objects, the first set

8   of relevancy scores indicating the relevancy of information objects in the second set of

9   information objects to information objects in the first set of information objects calculated

10   using the first selection technique;

11   code for applying the second selection technique to generate a second

12   set of relevancy scores for information objects in the second set of information objects, the

13   second set of relevancy scores indicating the relevancy of information objects in the second

14   set of information objects to information objects in the first set of information objects

15   calculated using the second selection technique; and

16   the code for selecting the third set of information objects comprises:

17   code for selecting information objects from the second set of

18   information objects to be included in the third set of information objects based upon the first

19   set of relevancy scores and the second set of relevancy scores.

1   22.   The computer-program product of claim 21 wherein the code for

2 applying the first selection technique to generate the first set of relevancy scores comprises:

3   code for determining a plurality of concepts of interest to the user;

4   code for determining relevancy of each information object in the first set of

5 information objects to each concept in the plurality of concepts;

6   code for determining relevancy of each information object in the second set of

7 information objects to each concept in the plurality of concepts; and

8   code for calculating the first set of relevancy scores based upon the relevancy

9 of each information object in the first set of information objects to each concept in the

10 plurality of concepts and based upon the relevancy of each information object in the second

11 set of information objects to each concept in the plurality of concepts, wherein each

12 relevancy score in the first set of relevancy scores indicates a degree of relevancy of an

13 information object in the second set of information objects to an information object in the

14 first set of information objects for a particular concept included in the plurality of concepts.

1   23.   The computer-program product of claim 21 wherein the code for

2 applying the second selection technique to generate the second set of relevancy scores

3 comprises:

4   for each information object in the first set of information objects:

5   code for identifying a type of the information object based upon

6 contents of the information object;

7   code for determining a comparison technique based upon the type of

8 the information object; and

9   for each information object in the second set of information objects,

10 code for applying the comparison technique to generate a relevancy score for the information

11 object in the second set of information objects, the relevancy score indicating a degree of

12 relevance of the information object in the second set of information objects to the information

13 object in the first set of information objects using the comparison technique determined based

14 upon the type of the information object in the first set of information objects.

1   24.   The computer-program product of claim 15 further code for

2 communicating the third set of information objects to a user system which is used to output

3 information stored by information objects in the third set of information objects to the user.

1   25.   The computer-program product of claim 15 further comprising code

2 for outputting information stored by information objects in the third set of information

3 objects to the user in a predetermined area of an access program which is used to display the

4 first document to the user.

1   26.   The computer-program product of claim 25 wherein the access

2 program is a web browser and the first document is a web page.

1   27.   The computer-program product of claim 15 further comprising:

2   code for determining when a second document is displayed to the user instead

3 of the first document;

4   code for identifying the second document displayed to the user;

5   code for identifying at least a first section of the second document;

6   code for extracting a fourth set of information objects from the first section of

7 the second document;

8   code for determining new degree of relevancy information for the second set

9 of information objects, the new degree of relevancy information indicating the relevancy of

10 information objects in the second set of information objects to information objects in the

11 fourth set of information objects; and

12   code for selecting a fifth set of information objects from information objects in

13 the second set of information objects based upon the new degree of relevancy information

14 determined for the second set of information objects, wherein information objects in the fifth

15 set of information objects store information to be output to the user when the second

16 document is being displayed to the user.

1   28.   A computer-program product stored on a computer readable storage

2 medium for providing information to a user based upon contents of a document displayed to

3 the user, the computer-program product comprising:

4   code for accessing a first set of content provider information objects (CPIOs);

5   code for identifying the document displayed to the user;

6   code for extracting a first set of user document information objects (UDIOs)

7 from the document;

8   code for identifying a plurality of selection techniques for determining degree

9 of relevancy information for the first set of CPIOs;

10   for each selection technique in the plurality of selection techniques, code for

11   applying the selection technique to generate degree of relevancy information for the CPIOs,

12   the degree of relevancy information indicating the relevancy of the CPIOs to the UDIOs

13   calculated using the selection technique; and

14   code for selecting a second set of CPIOs from the first set of CPIOs based

15   upon the degree of relevancy information for the CPIOs calculated using the plurality of

16   selection techniques, wherein information objects in the second set of CPIOs store

17   information to be output to the user when the document is being displayed to the user.

1   29.   A system for providing information to a user based upon contents of a

2   first document displayed to the user, the system comprising:

3   a processor;

4   a memory coupled to the processor, the memory configured to store a plurality

5   of code modules for execution by the processor, the plurality of code modules comprising:

6   a code module for identifying the first document displayed to the user;

7   a code module for identifying at least a first section of the first

8   document;

9   a code module for extracting a first set of information objects from the

10   first section of the first document;

11   a code module for determining degree of relevancy information for a

12   second set of information objects, the degree of relevancy information indicating the

13   relevancy of information objects in the second set of information objects to information

14   objects in the first set of information objects; and

15   a code module for selecting a third set of information objects from

16   information objects in the second set of information objects based upon the degree of

17   relevancy information determined for information objects in the second set of information

18   objects, wherein information objects in the third set of information objects store information

19   to be output to the user when the first document is being displayed to the user.

1   30.   The system of claim 29 wherein the first section of the first document

2   corresponds to a section of the first document displayed to the user.

1   31.   The system of claim 29 wherein the first section of the first document

2   corresponds to the entire first document.

1   32.   The system of claim 29 wherein the code module for extracting the

2   first set of information objects from the first section of the first document comprises:

3   for each information object in the first set of information objects:

4   a code module for identifying a type of the information object based

5   upon contents of the information object;

6   a code module for determining a first content recognition technique

7   based upon the type of the information object; and

8   a code module for applying the first content recognition technique to

9   the information object to determine information related to the contents of the information

10   object.

1   33.   The system of claim 29 wherein:

2   the code module for determining the degree of relevancy information for the

3   second set of information objects comprises:

4   a code module for identifying a plurality of selection techniques for

5   determining the degree of relevancy information; and

6   for each selection technique in the plurality of selection techniques, a

7   code module for applying the selection technique to generate relevancy scores for

8   information objects in the second set of information objects, the relevancy scores indicating

9   the relevancy of information objects in the second set of information objects to information

10   objects in the first set of information objects calculated using the selection technique; and

11   the code module for selecting the third set of information objects comprises:

12   a code module for selecting information objects from the second set of

13   information objects to be included in the third set of information objects based upon the

14   relevancy scores for information objects in the second set of information objects calculated

15   using the plurality of selection techniques.

1   34.   The system of claim 33 wherein the code module for selecting

2   information objects from the second set of information objects to be included in the third set

3   of information objects based upon the relevancy scores for information objects in the second

4   set of information objects calculated using the plurality of selection techniques comprises:

5   a code module for calculating an aggregate relevancy score for each

6   information object in the second set of information objects by aggregating the relevancy

7 scores generated for the information object by applying the plurality of selection techniques;

8 and

9 a code module for selecting an information object from the second set of

10 information objects to be included in the third set of information objects if the aggregated

11 relevancy score calculated for the information object is above a threshold value.

1 35. The system of claim 29 wherein:

2 the code module for determining the degree of relevancy information for the

3 second set of information objects comprises:

4 a code module for identifying a first selection technique and a second

5 selection technique for determining the degree of relevancy information; and

6 a code module for applying the first selection technique to generate a

7 first set of relevancy scores for information objects in the second set of information objects,

8 the first set of relevancy scores indicating the relevancy of information objects in the second

9 set of information objects to information objects in the first set of information objects

10 calculated using the first selection technique;

11 a code module for applying the second selection technique to generate

12 a second set of relevancy scores for information objects in the second set of information

13 objects, the second set of relevancy scores indicating the relevancy of information objects in

14 the second set of information objects to information objects in the first set of information

15 objects calculated using the second selection technique; and

16 the code module for selecting the third set of information objects comprises:

17 a code module for selecting information objects from the second set of

18 information objects to be included in the third set of information objects based upon the first

19 set of relevancy scores and the second set of relevancy scores.

1 36. The system of claim 35 wherein the code module for applying the first

2 selection technique to generate the first set of relevancy scores comprises:

3 a code module for determining a plurality of concepts of interest to the user;

4 a code module for determining relevancy of each information object in the

5 first set of information objects to each concept in the plurality of concepts;

6 a code module for determining relevancy of each information object in the

7 second set of information objects to each concept in the plurality of concepts; and

8   a code module for calculating the first set of relevancy scores based upon the

9   relevancy of each information object in the first set of information objects to each concept in

10   the plurality of concepts and based upon the relevancy of each information object in the

11   second set of information objects to each concept in the plurality of concepts, wherein each

12   relevancy score in the first set of relevancy scores indicates a degree of relevancy of an

13   information object in the second set of information objects to an information object in the

14   first set of information objects for a particular concept included in the plurality of concepts.

1   37.   The system of claim 35 wherein the code module for applying the

2   second selection technique to generate the second set of relevancy scores comprises:

3   for each information object in the first set of information objects:

4   a code module for identifying a type of the information object based

5   upon contents of the information object;

6   a code module for determining a comparison technique based upon the

7   type of the information object; and

8   for each information object in the second set of information objects, a

9   code module for applying the comparison technique to generate a relevancy score for the

10   information object in the second set of information objects, the relevancy score indicating a

11   degree of relevance of the information object in the second set of information objects to the

12   information object in the first set of information objects using the comparison technique

13   determined based upon the type of the information object in the first set of information

14   objects.

1   38.   The system of claim 29 wherein the plurality of code modules further

2   comprises:

3   a code module for communicating the third set of information objects to a user

4   system which is used to output information stored by information objects in the third set of

5   information objects to the user.

1   39.   The system of claim 29 wherein the first document is displayed to the

2   user using an access program and information stored by information objects in the third set of

3   information objects is output to the user in a predetermined area of the access program.

1   40.   The system of claim 39 wherein the access program is a web browser

2   and the first document is a web page.

1   41.   The system of claim 29 wherein the plurality of code modules further

2   comprises:

3   a code module for determining when a second document is displayed to the

4   user instead of the first document;

5   a code module for identifying the second document displayed to the user;

6   a code module for identifying at least a first section of the second document;

7   a code module for extracting a fourth set of information objects from the first

8   section of the second document;

9   a code module for determining new degree of relevancy information for the

10   second set of information objects, the new degree of relevancy information indicating the

11   relevancy of information objects in the second set of information objects to information

12   objects in the fourth set of information objects; and

13   a code module for selecting a fifth set of information objects from information

14   objects in the second set of information objects based upon the new degree of relevancy

15   information determined for the second set of information objects, wherein information

16   objects in the fifth set of information objects store information to be output to the user when

17   the second document is being displayed to the user.

1   42.   A system for providing information to a user based upon contents of a

2   document displayed to the user, the system comprising:

3   a user system displaying the first document to the user; and

4   a server system coupled to the user system;

5   wherein the server system is configured to:

6   access a first set of content provider information objects (CPIOs);

7   identify the document displayed to the user;

8   extract a first set of user document information objects (UDIOs) from

9   the document;

10   identify a plurality of selection techniques for determining degree of

11   relevancy information for the first set of CPIOs;

12   for each selection technique in the plurality of selection techniques,

13   apply the selection technique to generate degree of relevancy information for the CPIOs, the

14   degree of relevancy information indicating the relevancy of the CPIOs to the UDIOs

15   calculated using the selection technique; and

16   select a second set of CPIOs from the first set of CPIOs based upon the

17   degree of relevancy information for the CPIOs calculated using the plurality of selection

18   techniques; and

19   wherein the user system is configured to output information stored by the

20   second set of CPIOs to the user.

1   43.   The system of claim 42 wherein at least one CPIO included in the first

2   set of CPIOs is provided by a content provider system coupled to the server system.

1   44.   The system of claim 42 wherein the first set of CPIOs comprises a first

2   CPIO and a second CPIO, wherein the first CPIO is provided by a first content provider

3   system coupled to the server system and the second CPIO is provided by a second content

4   provider system coupled to the server system.